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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
NORTHPOINT TECHNOLOGY	)	RM No. 9245
	)	
Petition for Rule Making To Modify Section 101.147(p) of the Commission's Rules To Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band By Digital Broadcast Satellite Licensees and their Affiliates	)	

To: The Commission

OPPOSITION TO PETITION FOR RULE MAKING

PRIMESTAR, Inc. ("PRIMESTAR"), by counsel and pursuant to Section 1.405 of the Commission's Rules, hereby opposes the above-captioned Petition for Rulemaking ("Petition") filed by Northpoint Technology ("Northpoint"). The amendment to the Rules sought by Northpoint is unsupported by Northpoint's technical data and is premature in light of pending allocation issues regarding the spectrum it seeks. For these reasons, Northpoint's Petition should be denied.

I. Background

Currently, the 12.2-12.7 GHz band is allocated to the Direct Broadcast Satellite Service ("DBS") for downlink transmissions from DBS satellites to customer receivers.[1] In its Petition, Northpoint seeks amendment of Section 101.147 of the Commission's Rules to authorize DBS licensees and their affiliates to use the 12.2-12.7 GHz band terrestrially on a secondary, shared, non-interference basis to transmit video entertainment materials, data and other communications

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1 In addition, private operational fixed point-to-point microwave stations authorized after September 9, 1983, are licensed to the band on a non-interference basis and are required to make any and all adjustments necessary to prevent interference to operating DBS systems.

traffic related to the operation of the DBS system. The proposed rule change is based on Northpoint's efforts to develop a terrestrial transmitter which can be deployed in a manner that uses directional antennas, in conjunction with known DBS satellite positions, to provide terrestrial signals to DBS satellite receivers. Because DBS receive antennas are generally oriented in a southerly direction in order to face their desired satellites, Northpoint seeks to establish its transmitters to the north of such antennas. Employing directional antennas on its proposed terrestrial stations, Northpoint's system would transmit signals to small auxiliary antennas mounted on the back of the main DBS antennas. Northpoint believes its technology could be used to integrate local programming into a consumer's DBS viewing package, as well as to provide a new broadband data transmission service. Northpoint claims that it has developed sufficient technical safeguards to prevent its terrestrial transmitters from causing unacceptable interference to the DBS downlink signal.

PRIMESTAR provides direct-to-home satellite programming service to more than 2 million subscribers using a medium power Ku-Band Fixed Satellite Service ("FSS") satellite. PRIMESTAR currently has applications pending to acquire control of the licenses for DBS satellites currently held by Tempo Satellite, Inc., and MCI Telecommunications Corporation. See FCC File Nos. 91-SAT-TC-97; 106-SAT-AL-97. While PRIMESTAR is not opposed in general to efforts to integrate local programming into the DBS service, PRIMESTAR is concerned that the signals of its contemplated DBS satellites would be affected adversely by Northpoint's proposal.

II. Northpoint's Technical Proposal Fails to Support Modification of the Rules to Allow Additional Subsidiary Terrestrial Use of the DBS Band

A. Northpoint's Experimental Data Is Incomplete

In support of its Petition, Northpoint cites preliminary test data collected pursuant to experimental authority. Petition at 2.[2] According to Northpoint, "[t]hese results...indicate that the basic concept of the Northpoint technology, transmitting terrestrially on co-channel satellite frequencies, is viable as long as the terrestrial station is properly engineered." Id. at 15. However, a review of Northpoint's report indicates that a number of crucial interference issues remain outstanding which directly affect the viability of Northpoint's proposed terrestrial system. Unless and until these issues are resolved, there is no basis for the Commission to initiate any rulemaking which would allow for such operations in the 12 GHz band, or authorize Northpoint to expand its experiments in a way that might affect existing DBS customers.

Specifically, the following issues must be studied more fully and addressed prior to any proposed amendment to the current rules:

- Northpoint appears not to have identified or tested worst-case interference conditions in which the interfering terrestrial signal has a direct "array trace" to the DBS antenna feed. Such direct array trace to the feed results from "feed spillage" around the edge of the antenna, i.e., the feed over-illuminates the antenna and therefore provides a direct path from the edge of the dish into the feed. Northpoint also fails to take into account the wide variety of elevation angles and azimuth orientations which will exist among different DBS antennas pointed to different satellites across a wide orbital range (61.5° W.L. to 175° W.L.). Northpoint has not shown that the directivity of its terrestrial antennas is sufficient to avoid direct array paths entering some of these DBS antennas.

- In order to maintain a constant carrier to noise plus interference ratio (C/(N+I)) in the context of changing weather conditions, Northpoint proposes varying the EIRP of the terrestrial transmitter when, for instance, rain fade causes degradation of a satellite downlink signal. Petition at 15, 16. In order to achieve constant interference protection, each and every terrestrial transmitter would be required to monitor DBS satellites transmitting at all domestic DBS orbital locations, and to automatically adjust its EIRP in real time in order to

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2 See also Diversified Communications Engineering, Inc., Progress Report With Respect to Experimental License WA2XMY, January 8, 1998 ("Progress Report").

compensate for the weakest satellite signal monitored. This is an extremely complex undertaking, however, and Northpoint has failed to provide any detail as to how this process would be implemented. In addition, Northpoint has not demonstrated that it possesses the technology to achieve such an automated feedback control system.

- Although Northpoint analogizes its system to technology operating in a "terrestrial orbital slot", Petition at 4, it fails to demonstrate compliance with the intra-regional protection degradation criteria (0.25 dB) set forth in Appendix 30 to the International Radio Regulations. In fact, the degradation criteria proposed by Northpoint are substantially in excess of the Appendix 30 criteria.

- Northpoint's test results call in to question the accuracy of the DBS antenna exclusion zone data employed by it. For instance, the first test site chosen was supposedly within the predicted exclusion zone of a DirecTV antenna and should have resulted in interference to the DBS system. Progress Report at 6. However, no interference was reportedly caused to the system by full power testing of Northpoint's transmitter. At another site, Test Site 5, the DirecTV antenna did experience interference. However, Northpoint did not indicate whether Test Site 5 was within the predicted DirecTV exclusion zone. Id. at 7. Because of the deficiencies in Northpoint's Progress Report, no analysis of Northpoint's conclusions regarding exclusion zones could be conducted to verify the accuracy of its reported findings. PRIMESTAR believes it possible that other exclusion zones may not have been identified and, accordingly, not tested.

- Northpoint's analysis only pertained to DirecTV and Echostar systems.[3] No data was collected regarding Tempo's satellite at 119° W.L. or other DBS satellites operating at 61.5° W.L. This is significant because each DBS system has different design parameters such as IRD threshold and satellite EIRP which would contribute materially to interference test results. Similarly, repeatability from dish to dish was not tested because Northpoint only used a sample of one DBS antenna to make all of its receive measurements.

- Northpoint concedes that its initial test did not examine the effects of multi-path conditions. Petition at 16. Such analysis is crucial to the viability of Northpoint's system because such conditions (which would exist in any real world application) could provide the direct array trace path to the antenna feeds which would materially impact on DBS signal quality.

The incomplete nature of Northpoint's experimental data demonstrates that Northpoint's request for amendment of the Rules to allow for its terrestrial-based 12 GHz service is premature. Further, this deficiency renders moot Northpoint's public interest arguments

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3 Further, because the Echostar antenna employed by Northpoint in its tests was found to be non-functional, all measurements were taken using only the DirecTV antenna.

regarding the benefits of local signal delivery which would be brought by its system. Substantial additional study is required before the Commission can accurately assess the possibility of modification of its Rules as proposed by Northpoint.

B. Northpoint's Proposal Places An Intolerable Risk On DBS Operations

Because DBS digital systems are highly encoded, signal reception by DBS antennas tends either to be of high quality, or to be degraded to the point of no service. As a consequence, DBS systems have been designed to stay as far away from the "cliff edge" of signal loss as possible by employing an adequate rain-fade margin. Northpoint essentially seeks to appropriate all of this margin to its own advantage, introducing interference to a point just shy of impacting the DBS signal.

Northpoint's interference proposals are an intolerable risk to DBS operations. Although Northpoint claims that it will constantly monitor its transmitters and adjust power output to maintain constant interference levels with DBS antennas, as stated above it has failed to demonstrate how it will manage this process in an environment of multiple satellite downlinks and differing DBS antennas. Moreover, even if Northpoint is able to devise such a system, its proposal deprives DBS operators of control over the margin they have designed and leaves them at the mercy of the terrestrial service operators, who would assume the responsibility for monitoring and controlling interference margins for the entire DBS industry. Further, DBS operators would be forced to constantly police the terrestrial service in order to ensure that its transmissions not interfere with their customers' reception of DBS service. The fact that Northpoint proposes secondary status for terrestrial use of the 12 GHz spectrum does not dispel this problem.

III. The 12.2-12.7 GHz Band Cannot Support Another Service At This Time

Northpoint seeks to introduce a new service into a frequency band already beset by multiple competing users and an uncertain future interference environment. In 1982, the

Commission recognized the 12.2 - 12.7 GHz band as the only band available on an international basis for broadcast satellite service downlink use in the foreseeable future.[4] In order to accommodate the growth of DBS, the Commission undertook to remove from this band all of the domestic point to point microwave users then occupying it except those who could demonstrate that they would cause no interference to the new DBS service. Further, those microwave users who remain in the band are under a continuing obligation to take all steps necessary to avoid causing harmful interference to DBS operations. The Commission emphasized the crucial need to maximize the availability of spectrum in the band for DBS operations. Id.

More recently, the WRC-97 conference adopted provisional power flux density limits for a new class of non-geostationary fixed satellite service ("NGO-FSS") systems that, if approved, would be permitted to share the 12.2-12.7 GHz DBS downlink band. These provisional limits are subject to study and possible revision at the WRC-99 conference. Meanwhile, a petition for rulemaking to allocate frequencies (including 12.2-12.7 GHz) domestically to NGO-FSS, together with an application to construct, launch and operate such a system, have been filed by SkyBridge, L.L.C.[5] PRIMESTAR and other parties with FSS, DBS and terrestrial interests have opposed the petition and application on the grounds that SkyBridge has provided insufficient information to guarantee protection to DBS, FSS and terrestrial operations in the bands it proposes to use.[6] Action in these proceedings remains pending.[7]

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4 Regulatory Policy Regarding The Direct Broadcast Satellite Service, Gen. Docket No. 80-603, 90 FCC 2d 676 (1982); Memorandum Opinion and Order on Reconsideration, 53 RR2d 1637 (1983).

5 Application of SkyBridge, L.L.C., for Authority To Launch and Operate a Global Network of Low Earth Orbit Communications Satellites in the Fixed Satellite Service, FCC File Nos. 48-SAT-P/LA-97; 89-SAT-AMEND-97.

6 PRIMESTAR Petition to Deny or Hold in Abeyance, File Nos. 48-SAT-P/LA-97; 89-SAT-AMEND-97 (December 15, 1997).

7 Northpoint admits to the incompatibility between its proposed terrestrial system and NGO-FSS operations in the 12.2-12.7 GHz band. Petition at 17, 18.

Thus, at least three separate services either are already authorized or seek to be authorized in the 12.2 - 12.7 GHz band. Given the number of existing questions left to be resolved regarding future use of the 12.2-12.7 GHz band, it would serve no good cause for the Commission to take on consideration of yet another service proposal for the band at this time.

IV. Northpoint's Public Interest Goals Can Be Met In Less Disruptive Ways

The cornerstone of Northpoint's argument is that its proposed technology will allow DBS service providers to include local programming in their service, thereby both satisfying Commission public interest standards and greatly increasing DBS's competitiveness with cable television. Petition at 6. PRIMESTAR does not oppose this concept in principle. However, any proposal to integrate a local programming component into DBS must demonstrate the technical feasibility to protect the very DBS operations it is meant to enhance. As pointed out above, Northpoint simply has failed to provide sufficient support to show that its proposed technology will achieve its stated goals without causing unacceptable interference to DBS. In addition, the instability of the current 12.2-12.7 GHz allocation scheme and interference environment undercuts the public interest arguments set forth by Northpoint.

Further, in touting the benefits of its proposed technology, Northpoint completely ignores current efforts to bring local programming to DBS service that do not involve any of the technical issues raised by Northpoint. As the Commission noted in its annual assessment of the multichannel video market, the DBS industry is working on various solutions to this situation, and is developing antennas to improve over-the-air broadcast reception for DBS subscribers. [8] Further, Echostar is attempting to facilitate retransmission of local channels to some of its subscribers through the launch of additional satellites and the corresponding increase in channel

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8 Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, CS Docket No. 97-141 (1998) at para. 58.

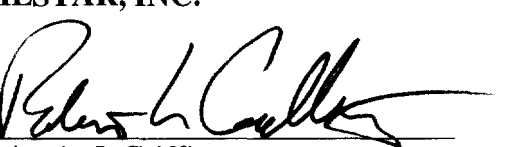
capacity. Id. Capitol Broadcasting Company, Inc. ("Capitol") has announced its "Local TV on Satellite" plan for retransmitting local signals by satellite. Id. Capitol states that it will operate a satellite in the Ka-band with 61 spotbeams that will cover the continental United States, Alaska and Hawaii. Capitol intends to offer DBS providers a local station package of all over-the-air, full power, commercial television stations within a given station's designated market area. Each of these efforts represents a possible solution to the problem of local programming by DBS and none suffers from the technical deficiencies of Northpoint's proposal. Accordingly, there is no compelling public interest reason to burden DBS operators with what could be debilitating interference from the Northpoint technology.

Conclusion

For the reasons stated herein, PRIMESTAR urges the Commission to deny Northpoint's Petition.

Respectfully submitted,

PRIMESTAR, INC.

By: 

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April 17, 1998

CERTIFICATION OF ENGINEER
RESPONSIBLE FOR PREPARATION OF TECHNICAL INFORMATION

I hereby certify that I am the technically qualified engineer responsible for the preparation of the technical information contained in PRIMESTAR, Inc.'s Opposition to the Petition for Rule Making filed by Northpoint Technology in RM Docket No. 9245. I further certify that I am familiar with the relevant parts of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted by PRIMESTAR, Inc., and that it is complete and accurate to the best of my knowledge and belief.

By: Ken Kashin

Title: Manager Satellite Technology

Date: April 17, 1998

CERTIFICATE OF SERVICE

I, Brendlyn V. Scott, a secretary with the law firm of Reed Smith Shaw & McClay LLP, do hereby certify that this 20th day of April, 1998, I have caused the foregoing "Opposition to Petition For Rule Making" to be delivered via first class mail, postage prepaid, to the following:

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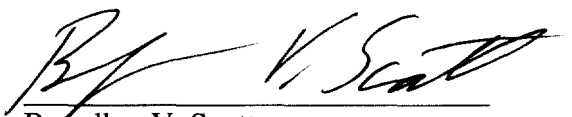

Brendlyn V. Scott